

METHOD FOR FABRICATING ASYMMETRIC INNER STRUCTURE IN CONTACTS OR TRENCHES

Abstract

The present invention provides a method for making an asymmetric inner structure in a contact or trench having a first sidewall, second sidewall, and a bottom in a semiconductor layer. A conformal dielectric layer is deposited on the interior surface of the contact or trench covering the first sidewall, second sidewall, and the bottom. A tilted angle ion implantation process is carried out to implant ions into the dielectric layer on the first sidewall and the bottom, but not the dielectric layer on the second sidewall. Thereafter, the doped dielectric layer on the first sidewall and the bottom is selectively etched away and leaving the un-doped dielectric layer on the second sidewall intact.